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Cultural Resources Survey Of The Indian Creek Channel Improvements Project, Denton County, Texas

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CULTURAL RESOURCES REPORT

CULTURAL RESOURCES SURVEY OF THE INDIAN CREEK CHANNEL IMPROVEMENTS PROJECT, DENTON COUNTY, TEXAS

TEXAS HISTORICAL COMMISSION
real places telling real stories

Prepared for:
Texas Historical Commission
Texas Antiquities Permit #8016

On Behalf of:
City of Carrollton
&
Huitt~Zollars

CARROLLTON
TEXAS

HUITT-ZOLLARS

August 2017

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CULTURAL RESOURCES SURVEY OF THE INDIAN CREEK CHANNEL IMPROVEMENTS PROJECT, DENTON COUNTY, TEXAS

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Cultural Resources Report
August 2017

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ABSTRACT

This report documents the substantive findings and management recommendations of a cultural resource inventory conducted by Integrated Environmental Solutions, LLC (IES) for the Indian Creek Channel Improvements Project, City of Carrollton, Denton County, Texas. Per the provisions of the Antiquities Code of Texas, as the project will transpire on land owned or controlled by the City of Carrollton, which is a political subdivision of the State of Texas, the proposed project will require coordination with the Texas Historical Commission (THC) prior to construction. In addition, as the project will require a Section 404 of the Clean Water Act (CWA) permit from the U.S. Army Corps of Engineers (USACE), portions of the project within USACE jurisdiction will also be subject to the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended. All work conformed to 36 Code of Federal Regulations (CFR) Part 800, and 13 Texas Administrative Code (TAC) 26, which outline the regulations for implementing Section 106 of the NHPA and the ACT, respectively.

The goal of the survey was to locate, identify, and assess any cultural resources that could be adversely affected by the proposed development, and to evaluate such resources for their potential eligibility for listing as a State Antiquities Landmark (SAL) or eligibility for listing in the National Register of Historic Places (NRHP).

The cultural resources inventory was conducted by archeologists Kevin Stone and Anne Gibson 08 June 2017, under Texas Antiquities Permit No. 8016. During the IES survey, no cultural resources were encountered within the 17.6-acre Area of Potential Effects.

No artifacts were collected as part of this survey. All records will be temporarily curated at the IES McKinney office and permanently curated at the Courthouse-on-the-Square Museum (CSM) in Denton, Texas. No further work is warranted. However, if any archeological sites are encountered during construction, the operators should stop construction activities, and immediately contact the project environment representative to initiate coordination with the THC prior to resuming any construction activities.

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CHAPTER 1: PROJECT DESCRIPTION

This report has been written in accordance with the guidelines for reports prepared by the Council of Texas Archeologists (CTA 2002). The report presents a brief description of the project area or Area of Potential Effects (APE), environmental setting, relevant cultural background, and methodology; followed by the results of the investigations and recommendations. This report serves as the cultural resources report to satisfy the Antiquities Code of Texas (ACT).

1.1: Introduction

As the project cultural resources consultant for Huitt~Zollars, on behalf of the City of Carrollton, Integrated Environmental Solutions, LLC (IES) performed a cultural resources inventory to locate any prehistoric or historic-period cultural resources that could be considered potentially eligible for inclusion on the National Register of Historic Places (NRHP) or listing as a State Antiquities Landmark (SAL) within the 17.6-acre project area or APE. The channel improvements will occur along Indian Creek between Hebron Parkway and Island Court within the City of Carrollton, Denton County, Texas. The APE is plotted on modern aerial photography and the Lewisville East 7.5 Minute Series U.S. Geological Survey (USGS) Quadrangle maps (**Figures 1.1** and **1.2**).

1.2: Area of Potential Effects

1.2.1 *Direct APE*

The APE will encompass approximately 17.6 acres. Ground disturbances associated with tree removal, grading, installation of a rock check dam, construction of bank protection walls, and installation of five rock rip-rap erosion control structures are anticipated for this project. Current plans indicate that the deepest subsurface impacts will be associated with the lowering of the floodplain bench and 3:1 slope bank grading, which will range from less than a foot to approximately eight feet in depth.

The proposed undertaking will stabilize a reach of Indian Creek that is actively downcutting and migrating laterally due to poor soil conditions creating a potentially hazardous scenario for the residential development, which lies directly adjacent to the project site. Channel stabilization will be accomplished by altering the floodplain cross-section via grading the banks to a 3:1 slope, lowering the existing floodplain bench, and adding low block bank walls and toe protection to the channel. By doing so, runoff will have more frequent access to the overbank area, allowing for greater connectivity to its floodplain ultimately reducing the shear stress on the channel bed and its banks. Additionally, through the restoration of existing erosion control structures and placement of rock rip-rap at sewer crossings and outfalls, channel erosion will be alleviated. Temporary geo-synthetic filter fabric will be placed in areas vulnerable to soil erosion. The geo-synthetic filter fabric is a bank protection system that is made from a sustainable product used to reinforce and protect banks and slopes from erosion. These areas will be reseeded and covered with a layer of top soil to prevent unintended impacts to wildlife.

1.2.2 *Indirect APE*

As the project requires federal permitting from the U.S. Army Corps of Engineers (USACE), indirect visual effects must be considered to satisfy Section 106 of the National Historic Preservation Act (NHPA). Since all elements of the project will remain at or below the ground's surface, visual impacts were not assessed. Since the proposed undertaking is designed to reduce erosion and will not increase water flow along Indian Creek, no erosional indirect effects were anticipated downstream from the APE. No other indirect effects will result from the proposed project.

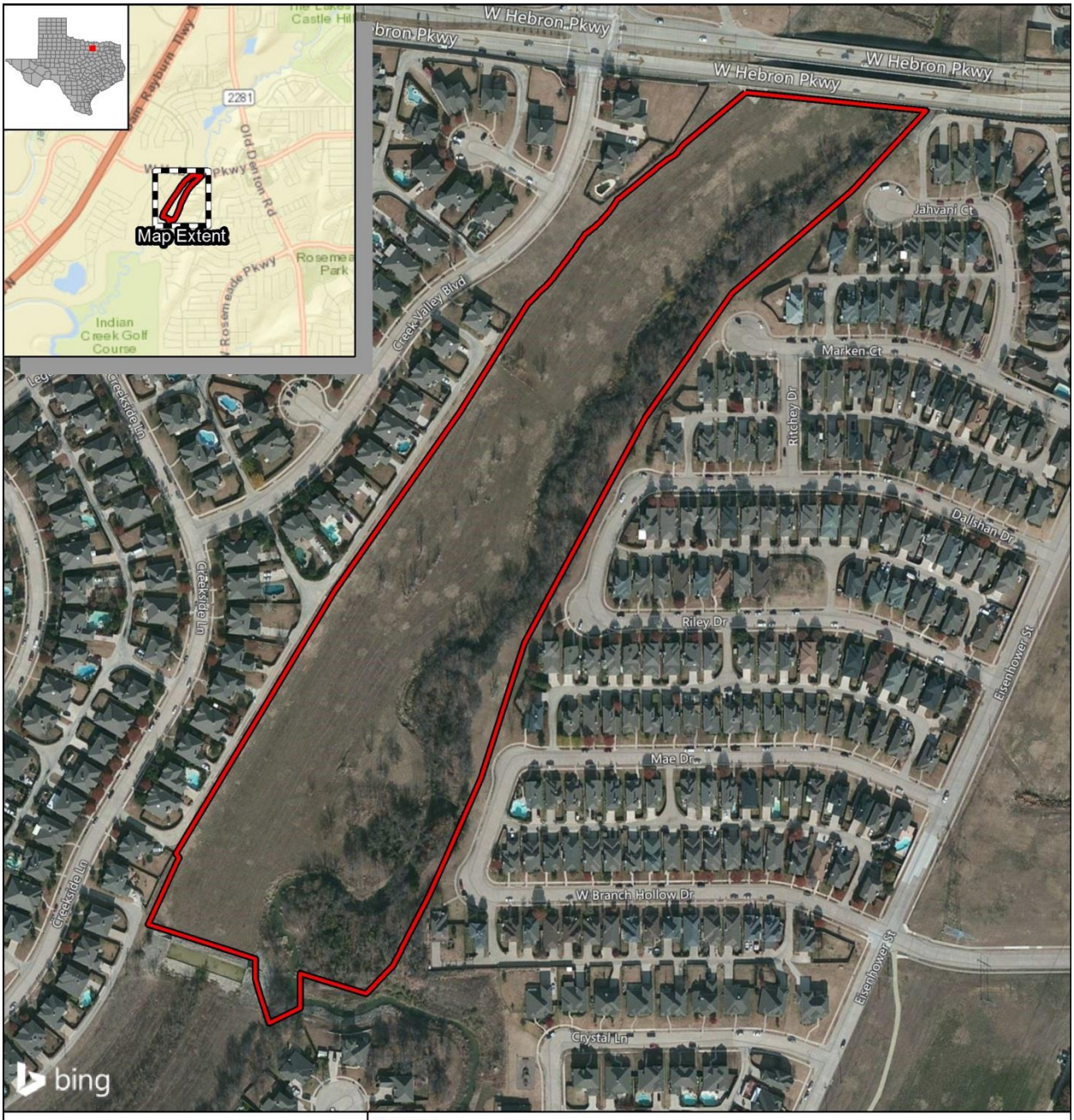

Figure 1.1
General Location Map

County: Denton
State: Texas
Date map created: 6/14/2017
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI 10.5 Streetmap

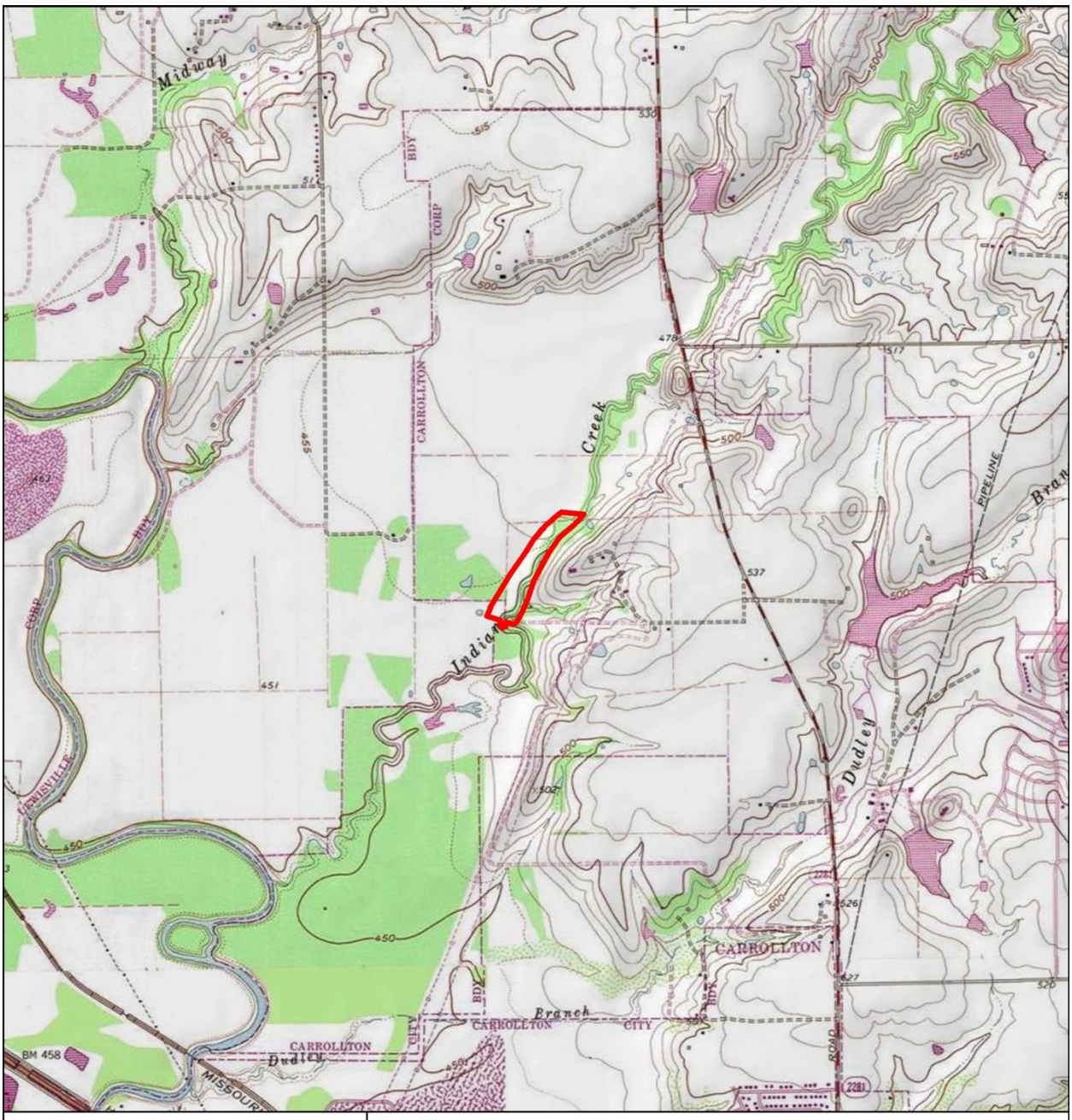

Figure 1.2
Topographic Setting

County: Denton
State: Texas
Date map created: 6/14/2017
Source: USGS Topographic Map
7.5' Quadrangle
Lewisville East 1982

1.3: Administrative Information

Sponsor: City of Carrollton
Review Agency: Texas Historical Commission (THC)
Principal Investigator: Kevin Stone, MA, RPA
IES Project Number: 04.271.002
Days of Field Work: 08 June 2017
Area Surveyed: 17.6 acres
Sites Recommended as Eligible for National Register Listing Under Criteria in 36 CFR 60.4: None
Sites Not Recommended as Eligible for National Register Listing Under Criteria in 36 CFR 60.4: None
Curation Facility: No artifacts were collected. Field notes and all records will be temporarily curated at the IES office in McKinney and permanently curated at Courthouse-on-the-Square Museum (CSM).

CHAPTER 2: ENVIRONMENTAL BACKGROUND

2.1: Environmental Setting

2.1.1 *Climate*

Denton County lies in the north-central part of the state of Texas. Annual rainfall averages between approximately 35.01 to 42.01 inches. About half of the rain usually falls between April and May, with July and August being the two driest months of the year. The subtropical region tends to have a relatively mild year-round temperature with the occasional exceedingly hot and cold periods (Estaville and Earl 2008).

2.1.2 *Topographic Setting*

The USGS Lewisville East 7.5' Quadrangle map illustrates that the APE is located within the floodplain of Indian Creek. The APE is located approximately one mile upstream from the creek's confluence with the Elm Fork Trinity River. The creek's floodplain is within the Elm Fork Trinity River's broad valley floor. The valley floor's natural topography very gently slopes toward the river. The APE is also located within the margins of the river's valley wall, which is comprised of a prominent uplift that separates Indian Creek from Dudley Branch. Topography within this area slopes steeply toward Indian Creek. North and west of Indian Creek, the APE is relatively flat with little topographic variation (see **Figure 1.2**)

2.1.3 *Geology and Soils*

The APE is located within the Northern Blackland Prairie ecoregion of the Texas Blackland Prairies. The Blackland Prairies region is characterized by low-relief topography containing "dark, thick, plastic clay soils" known as Vertisols (Griffith et al. 2007, Hill 1901). Historically, the Northern Blackland Prairies contained large expanses of tall prairie grasses, but agriculture, ranching, and urban development has greatly modified this ecoregion (Griffith et al. 2007). Soils in the APE are underlain by Quaternary Alluvium deposits (Qal), which are characterized by young deposits of clay, sand, and gravel in floodplain areas and outcrops adjacent to the channels of the Trinity River and its tributaries (**Figure 2.1**).

As shown by the *Soil Survey of Denton County, Texas*, there are two mapped soils within the APE (**Table 2.1**) (Ford et. al 1967). The APE contains clay soils located on floodplain steps near Indian Creek. Soil data was viewed from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (**Figure 2.2**) (Web Soil Survey 2017).

Table 2.1: Soils Located within the APE

Soil Series Description	Approximate Percentage of the APE
Ovan clay, occasionally flooded - This component is described as clay located on flood-plain steps. Depth to a root restrictive layer or bedrock is more than 80 inches. The natural drainage class is moderately well drained.	29.3%
Ovan clay, frequently flooded - This component is described as clay located on flood-plain steps. Depth to a root restrictive layer or bedrock is more than 80 inches. The natural drainage class is moderately well drained.	70.7%

Figure 2.1
Geologic Setting

County: Denton
State: Texas
Date map created: 6/14/2017
Source: TNRIS Geologic Atlas of Texas; Sherman Sheet

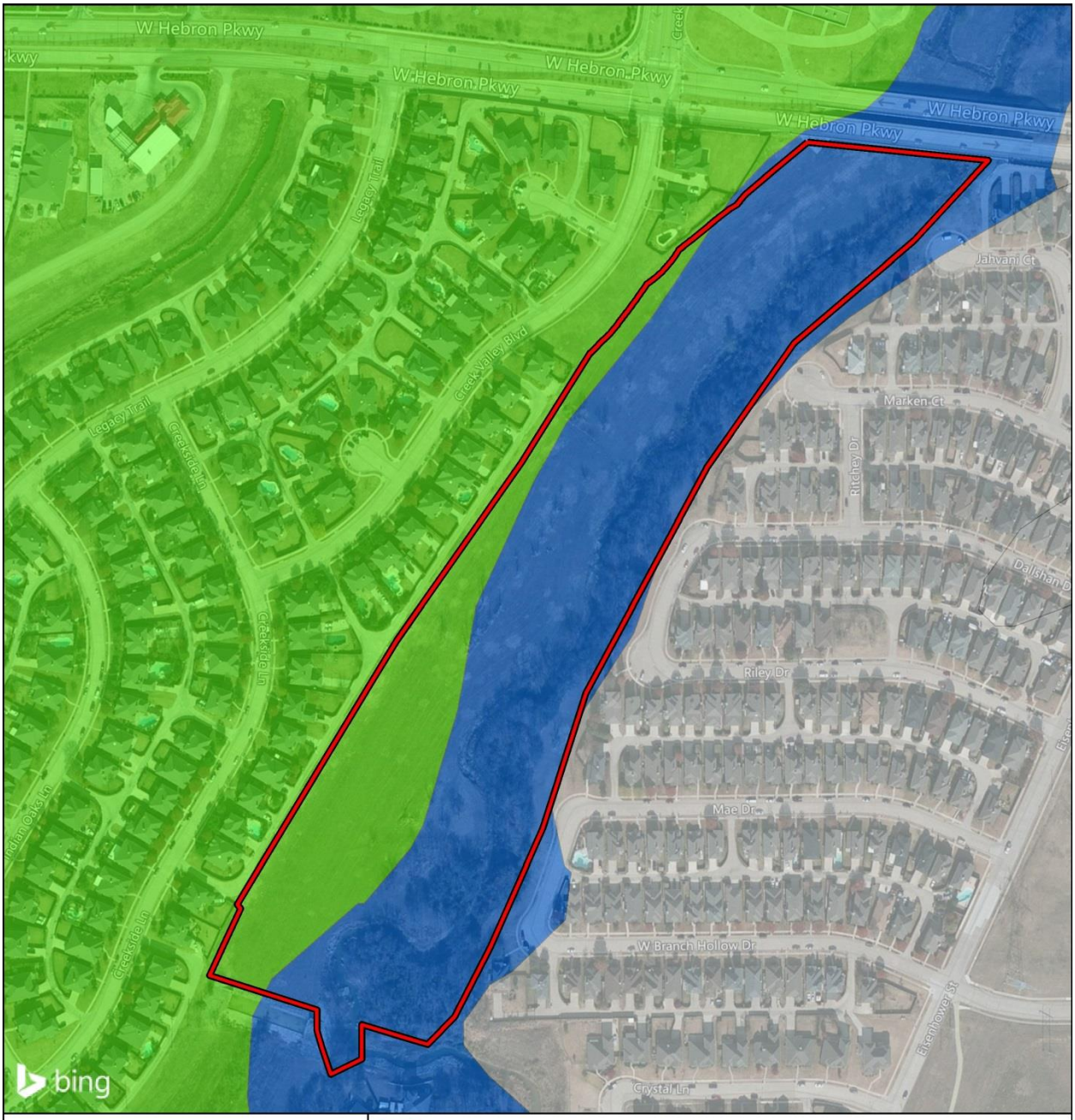

Figure 2.2
Soil Map Units Located Within and Adjacent to the APE

County: Denton
State: Texas
Date map created: 6/14/2017
Source: 2007 USDA
NRCS Digital Soils Database

Area of Potential Effects - Direct

Soil Description

- Other Values
- Ovan clay, frequently flooded
- Ovan clay, occasionally flooded

N
W E
S

1 inch = 250 feet

0 250 500 750 Feet

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CHAPTER 3: CULTURAL BACKGROUND

3.1: Previous Investigations

A file search within the Texas Archeological Sites Atlas (TASA) maintained by the THC identified that there are four previously conducted cultural surveys located within one-mile (~1,600 meter[m]) of the APE (**Table 1**; **Figure 3.1**). As the majority of these surveys were conducted several decades ago, little information pertaining to these surveys was identified during the background review. The TASA database indicates that there are no National Register Properties, historical markers, cemeteries, or previously recorded archeological sites within the proposed APE, nor within one-mile (~1,600 m) of the APE.

Table 3.1: Previous Archeological Surveys within One-Mile of the APE

Agency	ACT* Permit No.	Firm/Institution	Date	Survey Type	Location (Approximate)
Housing and Urban Development	-	-	1980	Area	0.05-mile southeast and 0.44-mile east of the APE
Federal Highway Administration	-	-	1985	Line	0.43-mile east of the APE
Texas Department of Transportation	-	-	1994	Area	0.6-mile west of the APE
-	-	Horizon Environmental Services, Inc.	2014	Area	0.28-mile northeast of the APE

3.2: Cultural Resources Potential

In addition to the TASA review, several additional sources were referenced to determine the overall potential for encountering cultural resources within the APE. These sources included the *Soil Survey of Denton County, Texas*, the Geologic Atlas of Texas - Dallas Sheet, the USGS topographic map, the NRCS digital soil database for Denton County, the Potential Archeological Liability Map (PALM), the National Archives and Records Administration's (NARA) 1940 Census Enumeration District Maps for Denton County, the Texas Historic Overlay (THO) georeferenced maps, and both past and current aerial photography.

3.2.1 *Prehistoric Resource Potential*

Data presented within the PALM for Denton County indicates the vast majority of the APE contains a high potential for containing shallow and deeply buried cultural materials within a reasonable context. A moderate potential for surface deposits is located along the northern and western APE boundaries. Historical aerial photography illustrates the western portion of the APE was utilized as an agricultural field or pasture as early as 1953. Between 1982 and 1989, the western portion of the Indian Creek floodplain was cleared of vegetation and had earthen material removed. Since this activity, the area has been maintained as grassland to the present day. During this period, a dam was constructed immediately south of APE. The APE east of Indian Creek has remained unchanged since 1953. Although widespread dirt removal was conducted north and west of the APE, it is unlikely that all soil capable of containing archeological deposits was removed; rather these deposits would now be located closer to the existing ground's surface. As such, the majority of the APE contains a reasonable context and features a moderate to high potential for containing prehistoric cultural materials.

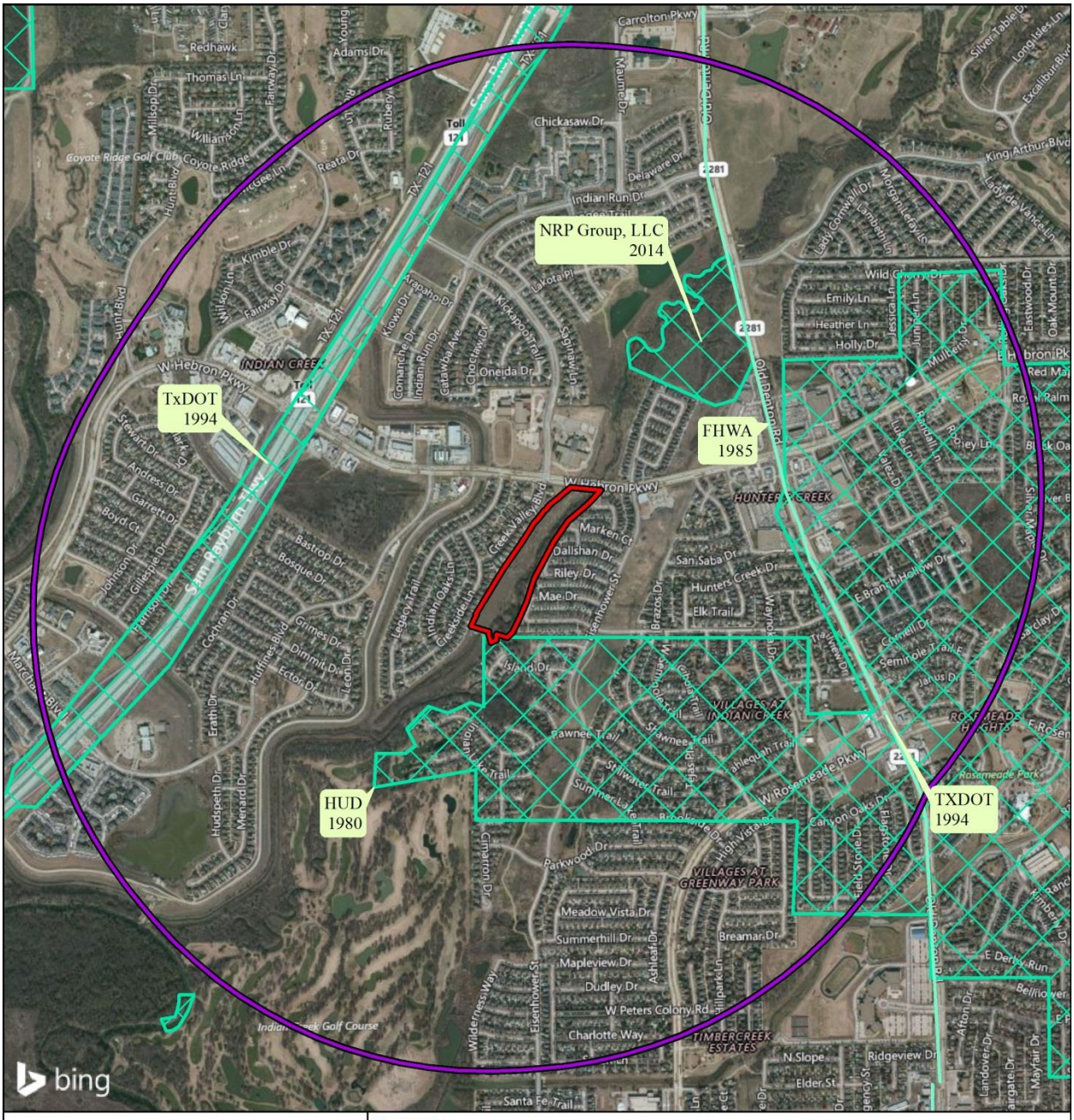

Figure 3.1
Previous Investigations Within One-Mile of the APE

County: Denton
State: Texas
Date map created: 6/14/2017
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI 10.5

Area of Potential Effects
Area of Potential Effects 1-Mile Buffer
Previous Archeological Survey-Area
Previous Archeological Survey-Line

N
W E
S

1 inch = 1,500 feet

0 1,500 3,000 4,500 Feet

3.2.2 *Historic-Period Resource Potential*

Historic-period resources within North-Central Texas are primarily related to farmsteads, houses, and associated outbuildings and structures that date from the mid-19th to the mid-20th centuries. Typically, these types of resources are located along old roadways, but can be located along railroads, creeks, and open pastures. Although determining the presence of the earliest of these buildings and structures were problematic, thorough and accurate maps depicting these features were widely available post-1918.

Historical maps indicate the APE was void of historic-period buildings and structures as early as 1918. This was visually confirmed through historical aerial photography from 1953, and modern aerial photograph interpretations. Aerial photographs dating to from 1953 to 1995 illustrate that the eastern portion of the APE was located at the western edge of a small farmstead containing several buildings. Although adjacent to the former location of this farmstead, the APE has a low potential for historic-period archeological and architectural resources.

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CHAPTER 4: METHODOLOGY

The archeological inventory for the cultural resources survey of the Indian Creek Channel Improvements Project was conducted on 08 June 2017. The methods and density of excavating shovel tests and backhoe trenching met the minimum requirements for field operations stipulated by the THC and CTA Archeological Survey Standards for Texas. Prior to field work, the IES staff conducted a historical and archeological records search to determine what cultural resources have been recorded within the APE and within a one-mile radius of the APE. This information was detailed in **Chapter 3**. Additionally, IES staff reviewed ecological, geological, soils data, as well as, historical and recent topographic maps and aerial photography.

4.1: Survey Methods

The 100-percent intensive pedestrian survey consisted of a careful examination of the ground surface and existing subsurface exposures for evidence of archeological sites within the APE. The survey consisted of a multiple transect scheme with transect lines spaced at 30 m intervals orientated north to south across the APE. Areas displaying high levels of disturbance were photographed to document the lack of potential for intact archeological deposits. Other documentation methods included narrative notes, maps, and shovel test records.

Standards for archeological methods require that measurements be recorded in metric units. For this reason, while general distances and engineering specifications are described in feet or miles within this report, archeological measurements and observations are listed in meters or centimeters, unless artifact diagnostic elements must be presented within Imperial unit measurements.

4.2: Shovel Testing

In areas with potential for archeological materials, shovel tests were excavated to 60 centimeters below surface (cmbs) or the bottom of culturally sterile deposits, whichever was encountered first, unless otherwise specified. Each shovel test was 30 cm in diameter and was hand excavated in natural stratigraphic levels not exceeding 20 cm in thickness. Excavated soil was screened using ¼-inch hardware cloth to test for the presences of buried cultural material. All tests were recorded on maps and plotted using hand-held Global Positioning System (GPS) units. Investigators documented the results of each test on standardized shovel test forms. According to the Archeological Survey Standards of Texas, for projects displaying little to no disturbance, an APE between 11 and 100 acres requires one shovel tests per two acres. As such, an APE of 17.6-acres requires eight shovel tests. However, shovel test numbers could vary based on the amount of disturbance, exposed bedrock or culturally sterile soil, ground visibility, steep slopes present within the APE, or if archeological site(s) are encountered. All positive shovel tests, cultural features, and other site data will be geospatially recorded using a Trimble Geo XT handheld GPS unit.

4.3: Backhoe Trenching

Due to the elevated potential for deeply buried cultural deposits to be located within the Indian Creek floodplain backhoe trenching was utilized. Backhoe trenches were excavated to the bottom of culturally sterile deposits using stratigraphic knowledge gleaned from shovel testing, cutbank assessments, and pedogenesis. The length of each trench was dependent on the depth of the trench and the familiarity of the specific stratigraphy, but averaged 4 m. The backhoe featured a 12-inch wide, toothed bucket. During the excavation of each trench, samples of each horizon were screened through ¼-inch hardware cloth. However, if soils contained extremely high clay content, soil was troweled through by hand. The larger soil spoil pile underwent a less intensive combing, but was monitored during trench excavation. All trenches were plotted using hand-held GPS units. Soil profiles were developed by archeologists, with the soil and horizon characteristics recorded for each trench to be included within profile discussion.

4.4: Curation

The survey employed a non-collection strategy. Records, files, field notes, forms, and other documentation will be included in the curation package. All field-generated documents will be temporarily curated at the IES office and permanently curated at CSM. These documents and photographs will be organized and catalogued according to Texas Archeological Research Laboratories (TARL) curation standards.

CHAPTER 5: RESULTS

During the pedestrian survey, no cultural resources were encountered within the 17.6-acre APE. Shovel test unit and trench locations are illustrated in **Figure 5.1,** a photograph location map and photographs are located in **Appendix A,** and trench profile photographs are located in **Appendix B**.

5.1: Archeological Survey

5.1.1 *Past Ground Disturbances*

Data presented within the PALM for Denton County indicates the vast majority of the APE contains a high potential for containing shallow and deeply buried cultural materials within a reasonable context. A moderate potential for surface deposits is located along the northern and western APE boundaries. Historical aerial photography illustrates the western portion of the APE was utilized as an agricultural field or pasture as early as 1953. Between 1982 and 1989, the floodplain west of Indian Creek was cleared of vegetation and had an unknown amount of earthen material removed throughout the entirety of the floodplain. Since this activity, the area has been maintained as grassland to the present day. During this same period, a dam was constructed immediately south of APE. The APE east of Indian Creek has remained unchanged since 1953.

5.1.2 *General Survey Observations*

The APE was comprised of two distinct topographic settings with Indian Creek serving as the dividing line. To the west of Indian Creek, the APE was entirely comprised of a very gently sloping and featureless floodplain that, as described previously, had been graded during modern times. The floodplain area contained a light scattering of trees and had been recently mowed. To the east of the creek, the APE was much more narrow and located within a side and toe slopes of broad upland ridge, which was part of the Indian Creek valley wall. This section of the APE was primarily comprised of dense woods with a few grass lawns that were maintained by the surrounding subdivisions. Within this sloped setting, the hillside extended up to the east bank of the creek with a very narrow floodplain terrace. Disturbances east of the creek were primarily related to grading for subdivision development and erosion. During the survey east of the creek, a variety of cutbank exposures were examined and did not contain any evidence of buried cultural material.

5.1.3 *Shovel Testing*

During the pedestrian survey, nine negative shovel tests were excavated throughout the APE (**Figure 5.1**). Shovel tests AG1 though AG6 were located within the upland slopes and narrow floodplain terrace on the east side of Indian Creek. These shovel tests primarily encountered silty clay (10YR 4/2 and 10YR 5/2) that exceeded 40 cmbs and were terminated due to the perceived culturally sterile nature of the soil. Due to the limited space east of the creek, and the topographic setting, shovel tests were primarily placed directly adjacent to the creek when the slope was less steep. Based on observations made during the survey and through shovel testing, it was determined that there was no potential for deeply buried deposits to be located east of the creek and therefore would be sampled entirely through shovel testing.

Prior to the survey, IES archeologists were aware that there was potential for deeply buried archeological sites to be located within the floodplain west of the creek. As such, the floodplain area would require backhoe trenching to properly assess the area. Shovel testing was also conducted to ensure that appropriate sampling was achieved within the floodplain. Shovel tests KS1 through KS3 were excavated in between trench locations and typically encountered a silty clay loam (10YR 4/3) that exceeded 60 cmbs.

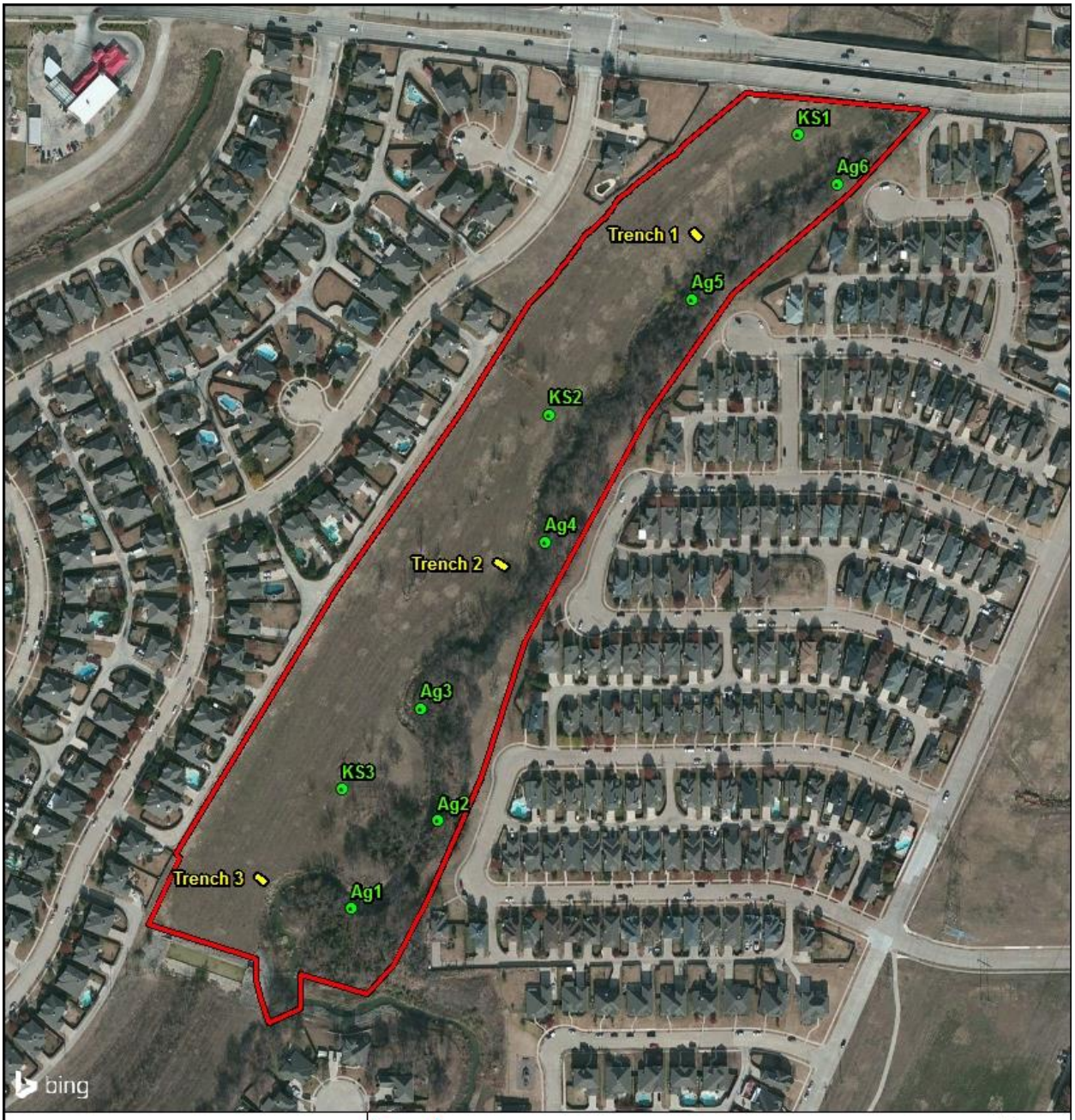

Figure 5.1
Shovel Test and
Trench Location Map

County: Denton
State: Texas
Date map created: 6/22/2017
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI 10.5

Area of Potential Effects - Direct
Shovel Test Location
Trench Location

N
W E
S

1 inch = 250 feet

0 250 500 750 Feet

5.1.4 *Backhoe Trenching*

Within the APE, soil classified as frequently and occasionally flooded were identified and determined to potentially could contain deeply buried cultural deposits. The USDA Web Soil Survey identified these soils as Ovan clay, which are occasionally and frequently flooded soils comprised of clayey alluvium. To sufficiently assess for deeply buried archeological deposits three trenches were excavated within the APE. No cultural resources were encountered during the excavation, monitoring, and recording of the three backhoe trenches. The general characteristics of each trench are described below.

5.1.4.1 *Trench 1*

5.1.4.1.1 Location and Description

Trench 1 was located approximately 110 m southwest of Hebron Parkway and approximately 10 m northwest of Indian Creek. Trench 1 was 5.6 m long, 1 m wide, and 2.5 m deep. The trench was excavated perpendicular to the Indian Creek channel and identified four distinct soil zones (**Appendix B, Photograph 1**). The trench was within a minimally sloped and uniform topographic setting (**Appendix A, Photographs 12** through **16**). No cultural deposits were identified within Trench 1.

5.1.4.1.2 Trench Profile

- Zone 1 was characterized by a modern vegetative zone to a depth of approximately 30 cmbs. This zone consisted of a homogenous, olive brown (10Y 4/3) silty clay loam with abundant rootlet fibers less than 2 millimeters (mm) in diameter and few round gravels less than 1 cm in size. This zone featured a fine granular structure that was friable. The lower boundary transition was diffuse and wavy.
- Zone 2 contained an olive brown (10Y 4/3) silty clay loam to a depth of approximately 160 cmbs. The silty clay soil was blocky and friable and contained common rootlet fibers and a few roots less than 2 cm in diameter. The zone contained 1 to 2 cm diameter mottles of 2.5Y 5/4 soil, which were comprised of a fine sand. This zone had a lower boundary that was clear and smooth.
- Zone 3 was characterized by a homogenous, very dark grayish brown (10Y 3/2) clay loam to a depth of approximately 140 cmbs. This zone contained unconsolidated Calcium Carbonate ($CACO^2$) inclusions approximately 3 cm in diameter that were common and small angular gravel less than 3mm in diameter. A few krotovina were present and exceeded the depth of the zone. The bottom of the zone contained an abrupt and smooth transition.
- Zone 4 contained an olive brown (10Y 4/4) clayey soil that feature common $CACO^2$ inclusions (3 cm in diameter), a wedge structure, and a high amount of minerals. The zone exceeded 250 cmbs and had a few krotovina present to the bottom of the trench.

5.1.4.2 *Trench 2*

5.1.4.2.1 Location and Description

Trench 2 was located approximately 340 m southwest of Hebron Parkway and approximately 13 m northwest of Indian Creek. Trench 2 was 5 m long, 1 m wide, and 2.4 m deep. The trench was excavated perpendicular to the Indian Creek channel and encountered five distinct soil zones (**Appendix B, Photograph 2**). The trench was within a minimally sloped and uniform topographic setting (**Appendix A, Photographs 17** through **21**). No cultural deposits were identified within Trench 2.

5.1.4.2.2 Trench Profile

- Zone 1 was characterized by a modern vegetative zone to a depth of approximately 30 cmbs. This zone consisted of a homogenous, olive brown (10Y 4/3) silty clay loam with abundant rootlet fibers less than 2 mm in diameter and few round gravels less than 1 cm in size. This

zone featured a fine granular structure that was friable. The lower boundary transition was diffuse and wavy.

- Zone 2 contained an olive brown (10Y 4/3) silty clay loam to a depth of approximately 160 cmbs. The silty clay soil was blocky and friable and contained common rootlet fibers and a few roots less than 2 cm in diameter. The zone contained 1 to 2 cm diameter mottles of 2.5Y 5/4 soil, which were comprised of a fine sand. This zone had a lower boundary that was clear and smooth.
- Zone 3 was characterized by a mottled, dark grayish brown (2.5Y 4/2) silty clay to a depth of 130 cmbs. The soil in this zone featured a very firm massive structure a with common root fibers less than 1 mm in diameter and a gradual and wavy lower boundary. Mottling less than 1 cm in dimeter was common and consisted of a reddish brown (5YR 4/4) and was clayey.
- Zone 4 contained a dark gray (10YR 4/1) clay loam that contained abundant brown (10YR 4/3) mottling that exceeded 150 cmbs. This zone contained a blocky structure that was sticky and featured abundant mussel shell fragments, charcoal, and marine snail. This zone had a diffuse and wavy lower boundary.
- Zone 5 contained a dark gray (10YR 4/1) clay loam that contained abundant brown (10YR 4/3) mottling that exceeded 240 cmbs. This zone contained a few mussel shell fragments and charcoal flakes. The zone had a fine granular structure that was blocky and very sticky.

5.1.4.3 *Trench 3*

5.1.4.3.1 Location and Description

Trench 3 was located approximately 575 m southwest of Hebron Parkway and approximately 10 m northwest of Indian Creek. Trench 3 was 5.3 m long, 1 m wide, and 1.7 m deep. The trench was excavated perpendicular to the Indian Creek channel and encountered four distinct soil zones (**Appendix B, Photograph 3**). The trench was within a minimally sloped and uniform topographic setting (**Appendix A, Photographs 1** through **4** and **11**). No cultural deposits were identified within Trench 3

5.1.4.3.2 Trench Profile

- Zone 1 was characterized by a very heterogeneous soil that was clearly disturbed and contained concrete chunks and large rocks. The gravelly silty clay loam was characterized by a dark grayish brown (10YR 4/2) mottled by very dark grayish brown (10YR 3/2 and dark yellowish brown (10YR 4/4). Between 45 and 50 cmbs, there was a dense lens of concrete chunks. This zone featured a medium to coarse granular structure that was friable. The lower boundary transition was abrupt and wavy.
- Zone 2 contained an olive brown 2.5Y 4/3 silty clay soil that contained few unconsolidated $CACO^2$ inclusions less than 1 cm in size, few rootlet fibers, small angular gravel, and krotovina. (10YR 5/6) sand to a depth of approximately 19 cmbs. This zone contained a fine grain wedge structure and had an abrupt and smooth lower boundary.
- Zone 3 was characterized, by an olive brown (2.5Y 4/4) clay loam to a depth of 140 cmbs. $CACO^2$ inclusions increased within this zone to an abundant level. Few rootlet fibers and gravel were present. The soil in this zone featured a very firm massive structure and a clear and smooth lower boundary.
- Zone 4 contained an olive brown (2.5Y 4/4) clay loam that exceeded 170 cmbs. This zone contained few $CACO^2$ inclusions and had a wedge shape structure that was firm and contained minerals crystals 1mm in size.

CHAPTER 6: SUMMARY AND RECOMMENDATIONS

During the pedestrian survey, nine negative shovel tests and three trenches were excavated within the 17.5- acre APE. Although the background review identified that the portions of the APE contained a high potential for shallowly and deeply buried cultural resources, no cultural resources were encountered during the intensive pedestrian survey

Therefore, it is the recommendation of IES that the Indian Creek Channel Improvements Project be permitted to continue without the need for further cultural resource investigations. However, if any archeological resources are encountered during construction, the operators should stop construction activities immediately in those areas. The project environmental consultant should then be contacted to initiate further consultation with the THC/SHPO prior to resuming construction activities.

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APPENDIX A
Photograph Location Map and General Photographs

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13

Photograph 14

Photograph 15

Photograph 16

Photograph 17

Photograph 18

Photograph 19

Photograph 20

Photograph 21

Photograph 22

Photograph 23

Photograph 24

Photograph 25

Photograph 26

Photograph 27

Photograph 28

Photograph 29

Photograph 30

Photograph 31

Photograph 32

Photograph 33

Photograph 34

Photograph 35

APPENDIX B
Trench Profile Photographs

Photograph 1 – Trench 1

Photograph 2 – Trench 2

Photograph 3 – Trench 3